MiX16 PRO
Theatre Show System

User Manual

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Introduction

Introducing MiX16 PRO for OSX, the big brother of iMiX16 for iOS.

THE MOST STABLE APP IN SHOW BUSINESS!
Created by a professional theatre sound engineer.

Used by theatre engineers, stage managers, live show producers, choreographers, magicians, puppeteers, cruise ship comedians, school teachers and many more all over the world.

MiX16 PRO Theatre Show System is a Mac OSX application for professional audio and video support in a theatre show or live performance.

Key Features:
- 64 audio, video and image channels,
- play all audio, video and image channels simultaneously,
- adjust volume, fade-in and fade-out for each audio and video channel,
- adjust master audio volume for all audio and video channels,
- select audio output device for each audio and video channel (using USB or FireWire multichannel audio interface),
- play video or image on external display such as monitor, TV or LCD projector,
- loop audio and video channels,
- image slide show,
- load and save audio, video and image channels settings (create setup file for each performance),
- import and export setup (to use it on another computer or on iPad - iMiX16 PRO64),
- KEYBOARD - control the app with keyboard,
- MIDI IN/OUT – control the app with MIDI controller; control other apps and MIDI devices with the app,
- PLAYLIST - create audio, video and image cues and control your show with a single button.

Combination of multiple audio, video and image players gives you almost unlimited support in your theatre show or live performance.

Audio

Each audio screen contains 16 audio channels and a master volume.
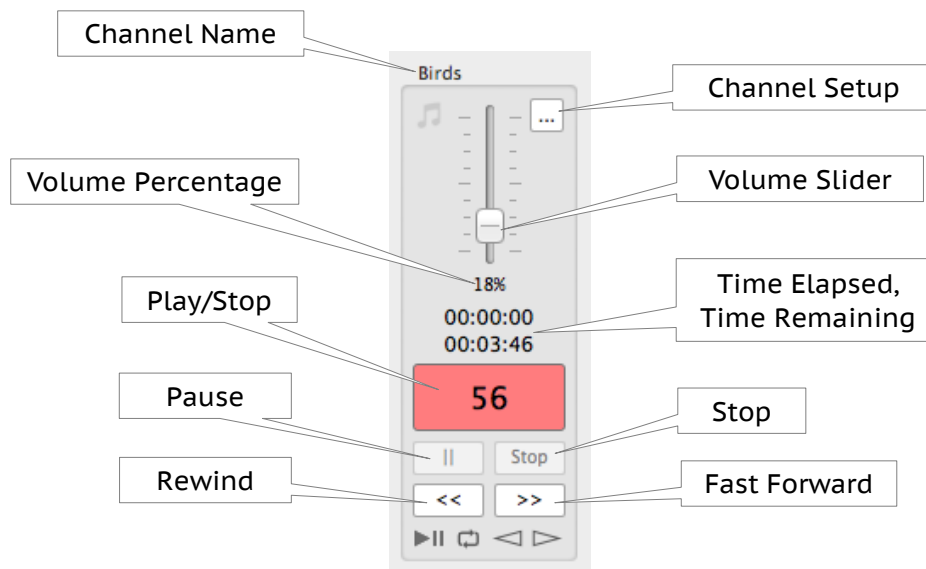
Channel

Master
Volume

Audio Channel

Audio channel contains channel setup button, volume slider, Play/Stop, Pause, Stop, Rewind and Fast Forward buttons. It also contains channel name label, volume percentage, time elapsed and time remaining labels and icons for Play Mode, Loop, Fade-in and Fade-out status.

Play/Stop button indicates channel status:
- gray – no audio loaded (empty),
- red – stopped, never played,
- light red – stopped, played at least once,
- blue – paused,
- green – playing.

A tip: use Shift or Function key to rewind or fast forward faster (Shift key - 5 sec, Function key - 10 sec).

Load Audio File

To load an audio file or edit channel options press channel setup button. Once audio file is loaded Play/Stop button will turn red and channel name label will now contain first few letters of the file name of the selected audio file.

Note that channel setup button is not available when channel is playing or paused!

Supported file formats and extensions:
- audio: AIF, AIFF, M4A, MP3 and WAV.
- video : MOV, MP4 and MP4V.
- image: JPG, JPEG and PNG.

Audio Setup

Audio setup window contains information and options for the selected audio channel: channel name, file name, output device, play mode, loop, fade-in, fade-out and playback mode.
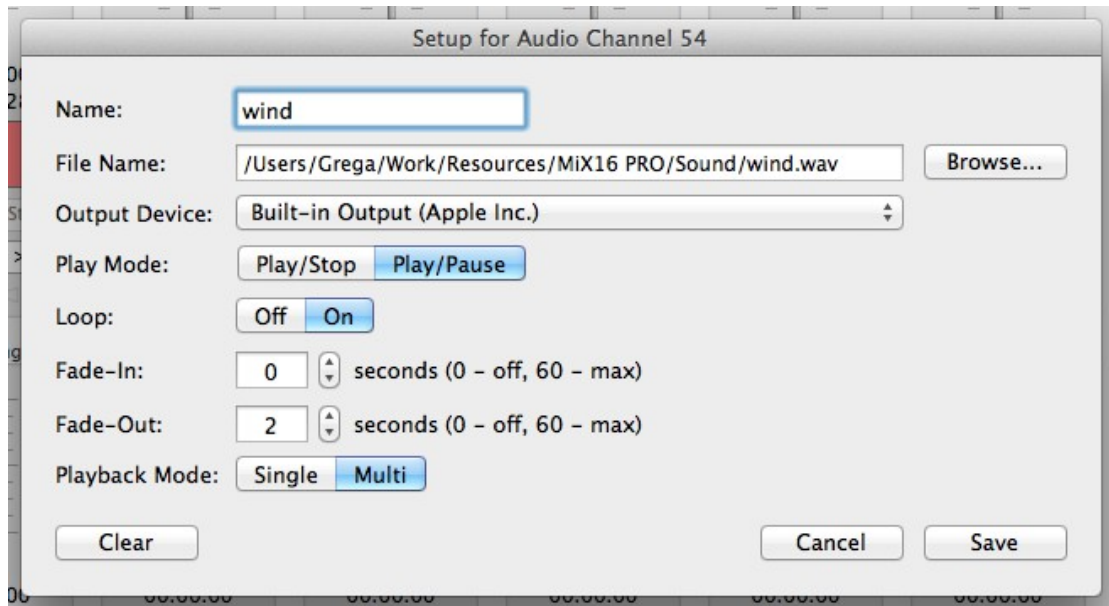
Name: set the name of the selected audio channel.

File Name: displays full path of the selected audio file.

Browse: press it to select and load a new audio file.

Output Device: select an output device for playback.

Play Mode:
- Play/Stop – audio file will start playing from the beggining,
- Play/Pause – audio file will resume playing from the current position.

Loop: loop playing audio file (ON / OFF).

Fade-In and Fade-Out: fade-in/out duration in seconds. Value 0 means that fade-in/out is OFF. Maximum fade-in/out duration is 60 seconds.
Note that if audio file is shorter fade-in/out duration will be set to audio file length.

Playback mode:
- Single – stop all other audio channels playback,
- Multi – allow all other audio channels playback.
Note that when single mode is selected, dot will be added next to the channel number in Play/Stop button.

Press Save to apply audio channel options, press Cancel to discard changes. Press Clear button to clear audio channel.

Video

Each video screen contains 16 video channels and audio master volume.
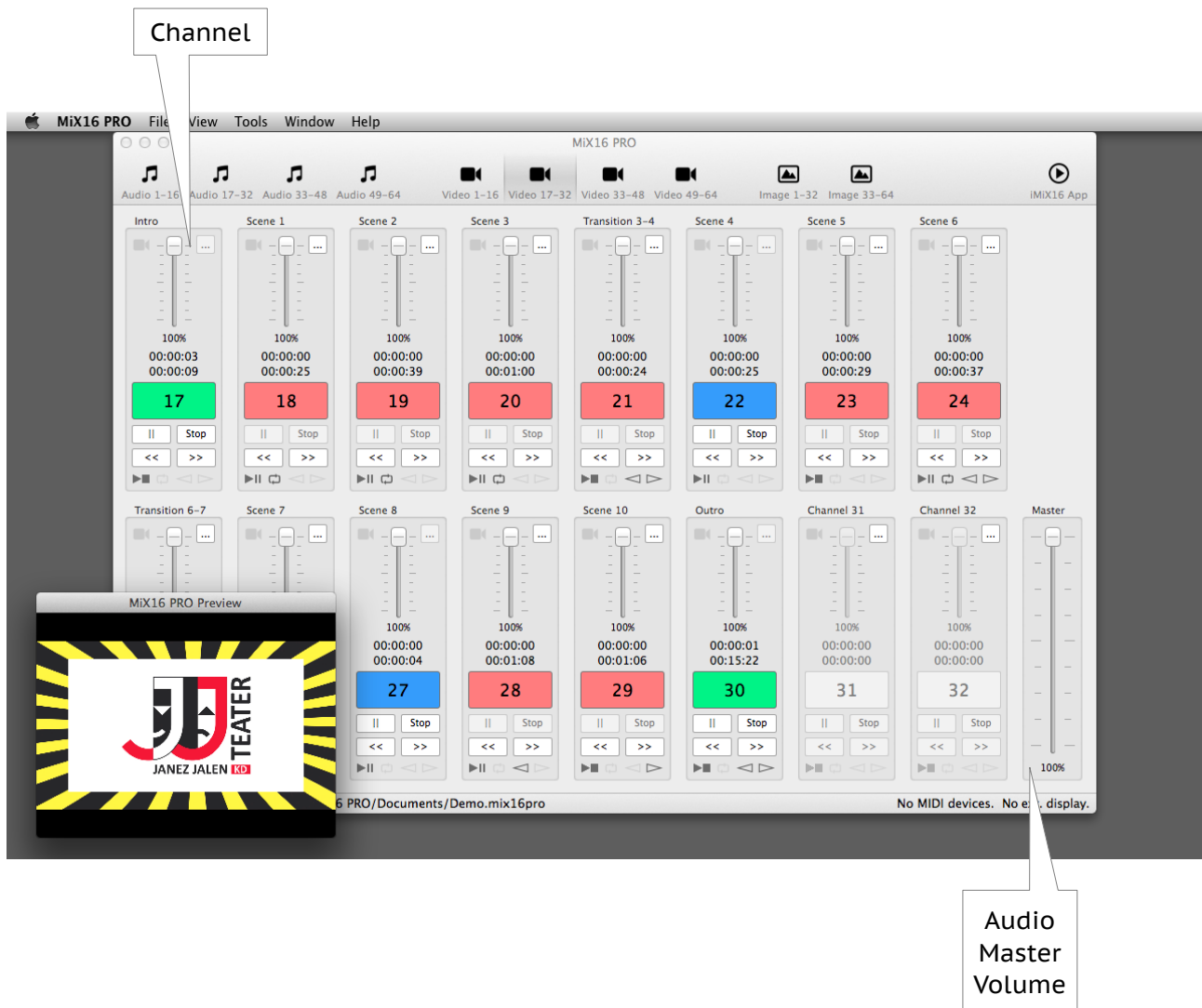
Channel

Audio
Master
Volume

Video and image playback logic:
- when no external display is connected videos and images are played in Preview window,
- when external display is connected Preview window disappears, videos and images are played on external display only.

VERY IMPORTANT!
1. For best performance use MOV video file format.
2. Make sure you set original screen resolution for external display otherwise you can experience minor video playback problems (video playback can randomly freeze for a split of a second).
3. In some cases MP4 format does not allow fast forward operation.
4. Playing a lot of video files at once on older computers can cause playback to become slow and unresponsive.

Video Channel

Video channel contains channel setup button, volume slider, Play/Stop, Pause, Stop, Rewind and Fast Forward buttons. It also contains channel name label, volume percentage, time elapsed and time remaining labels and icons for Play Mode, Loop, Fade-in and Fade-out status.

Play/Stop button indicates channel status:
- gray – no video loaded (empty),
- red – stopped, never played,
- light red – stopped, played at least once,
- blue – paused,
- green – playing.
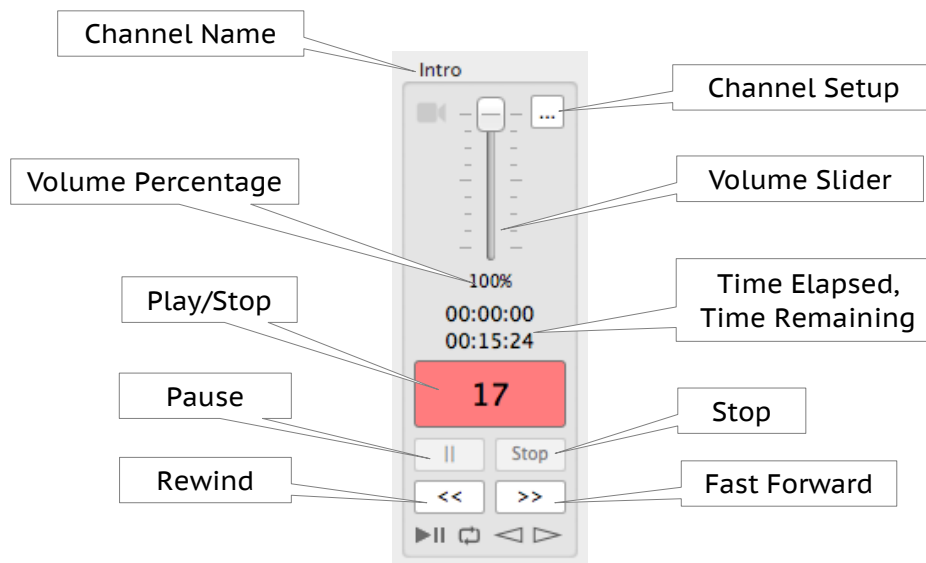
A tip: use Shift or Function key to rewind or fast forward faster (Shift key - 5 sec, Function key - 10 sec).

Load Video File

To load a video file or edit channel options press channel setup button. Once video file is loaded Play/Stop button will turn red and channel name label will now contain first few letters of the file name of the selected video file.

Note that channel setup button is not available when channel is playing or paused!

Supported file formats and extensions:
- audio: AIF, AIFF, M4A, MP3 and WAV.
- video : MOV, MP4 and MP4V.
- image: JPG, JPEG and PNG.

Video Setup

Video setup window contains information and options for the selected channel: channel name, file name, output device, play mode, loop, fade source, fade-in, fade-out, sync audio and playback mode.
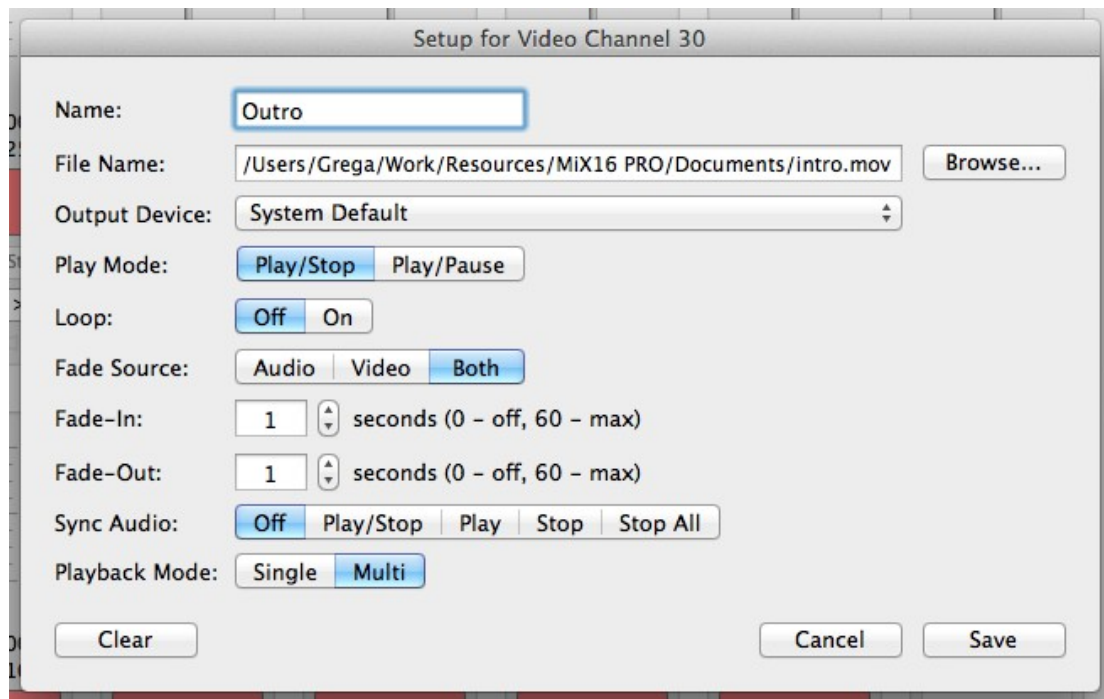
Name: set the name of the selected video channel.

File Name: displays full path of the selected video file.

Browse: press it to select and load a new video file.

Output Device: select an output device for audio playback.
Note that video is always played on external display or in Preview window when external display is not connected.

Play Mode:
- Play/Stop – video file will start playing from the beggining,
- Play/Pause – video file will resume playing from the current position.

Loop: loop playing video file (ON / OFF).

Fade Source: select a source for channel volume slider and fade-in/out controls.

Fade-In and Fade-Out: fade-in/out duration in seconds. Value 0 means that fade-in/out is OFF. Maximum fade-in/out duration is 60 seconds.
Note that if video file is shorter fade-in/out duration will be set to video file length.

Sync Audio – video channels can be synchronized with audio channels. There are several modes available:
- OFF – no synchronization,
- PLAY/STOP – full synchronization (video channel play –> audio channel play, video channel stop –> audio channel stop),
- PLAY – part synchronization (video channel play –> audio channel play),
- STOP – part synchronization (video channel play –> audio channel stop),
- STOP ALL – part synchronization (video channel play –> stop all audio channels).

Playback mode:
- Single – stop all other video and image channels playback,
- Multi – allow all other video and image channels playback.

Note that when single mode is selected, dot will be added next to the channel number in Play/Stop button.

Press Save to apply video channel options, press Cancel to discard changes. Press Clear button to clear video channel.

Image

Each image screen contains 32 image channels. First image screen (Image 1-32) also contains slide show Play/Stop button and options.
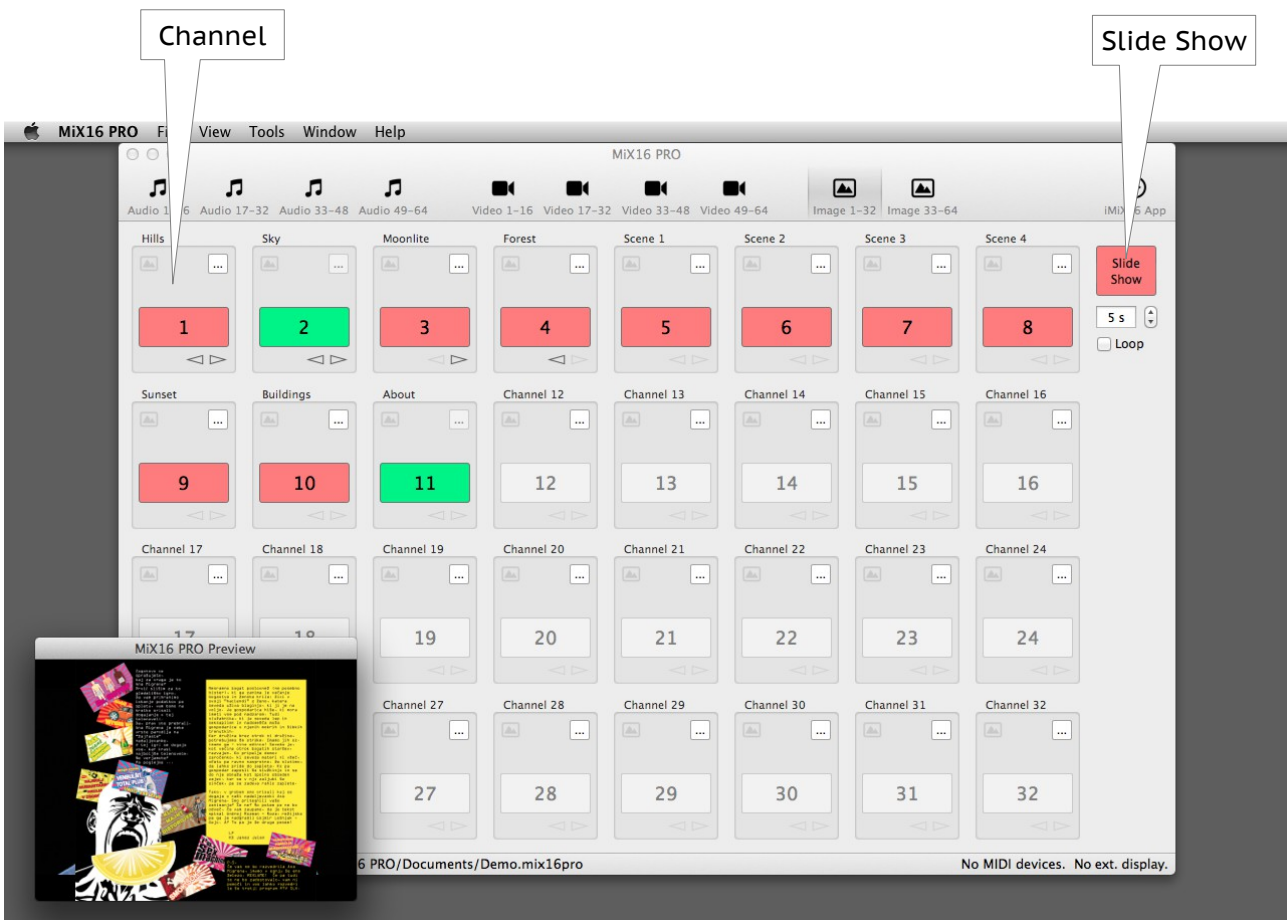
Video and image playback logic:
- when no external display is connected videos and images are played in Preview window,
- when external display is connected Preview window disappears, videos and images are played on external display only.

VERY IMPORTANT!
1. For best performance use smaller images.
2. For best result set original screen resolution for external display.

Image Channel

Image channel contains channel setup and Play/Stop buttons. It also contains channel name label and icons for Fade-in and Fade-out status.

Play/Stop button indicates channel status:
- gray – no image loaded (empty),
- red – stopped,
- light red – stopped, played at least once,
- green – playing.

Channel Name

Forest

Channel Options

Play/Stop

4

Load Image File

To load an image file or edit channel options press channel setup button. Once image file is loaded Play/Stop button will turn red and channel name label will now contain first few letters of the file name of the selected image file.
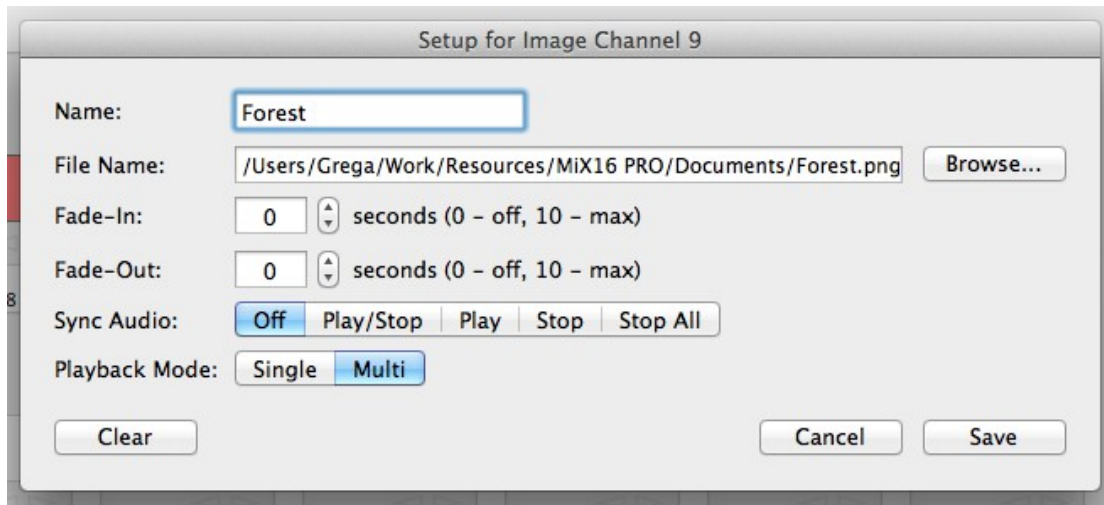
Note that channel setup button is not available when channel is playing!

Supported file formats and extensions:
- audio: AIF, AIFF, M4A, MP3 and WAV.
- video : MOV, MP4 and MP4V.
- image: JPG, JPEG and PNG.

Image Setup

Image setup window contains information and options for the selected channel: channel name, file name, fade-in and fade-out.

Name: set the name of the selected image channel.

File Name: displays full path of the selected image file.

Browse: press it to select and load a new image file.

Fade-In and Fade-Out: fade-in/out duration in seconds. Value 0 means that fade-in/out is OFF. Maximum fade-in/out duration is 10 seconds.

Sync Audio – image channels can be synchronized with audio channels. There are several modes available:
   • OFF – no synchronization,
   • PLAY/STOP – full synchronization (image channel play –> audio channel play, image channel stop –> audio channel stop),
   • PLAY – part synchronization (image channel play –> audio channel play),
   • STOP – part synchronization (image channel play –> audio channel stop),
   • STOP ALL – part synchronization (image channel play –> stop all audio channels).

Playback mode:
   • Single – stop all other video and image channels playback,
   • Multi – allow all other video and image channels playback.
Note that when single mode is selected, dot will be added next to the channel number in Play/Stop button.

Press Save to apply image channel options, press Cancel to discard changes. Press Clear button to clear image channel.

Slide Show

Slide show contains Play/Stop button, slide duration and loop options.

Play/Stop button indicates slide show status:
- red – stopped,
- green – playing.

Slide show logic:
- slide show plays all loaded image channels (from both image sections 1-32 and 33-64),
- it start from first to last image channel (if image channel is not loaded it will skip it),
- during slide show all image channels are DISABLED (you can not manually load or play image channel or change image channel options),
- however you can change slide show options (slide duration and loop),
- slide duration can be set to minimum 1 second and maximum 60 seconds,
- when loop is set to ON, slide show will automatically start from the first loaded image channel after all loaded image channels are played.

Important! If you play video channel when slide show is playing, slide show will stop.

Playlist

Playlist contains playlist items – cues, playlist options (ON AIR, Display Mode, GO Mode, Playback Mode), cue functions (Add, Edit, Delete, Move Up, Move Down and Delete All) and playback functions (Set GO/TIME to Selected Cue, Stop All and GO button).
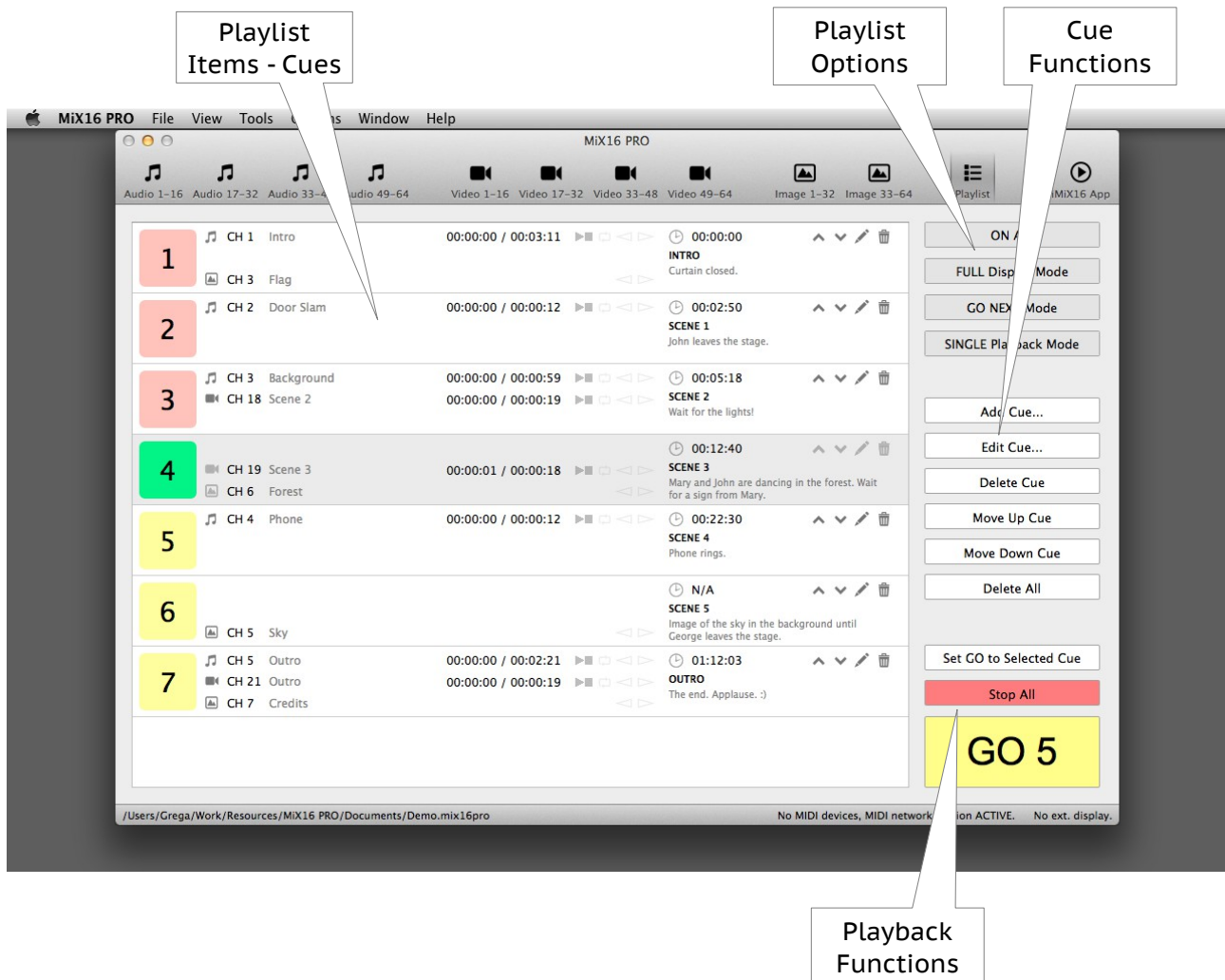
Playlist options:
- ON AIR – when ON options and functions are disabled (turn it ON during the show).
- Display Mode:
  - FULL – cues are displayed in full mode (cue number, channels, time, etc.),
  - NAME – cues are displayed with cue number, name and note only.
- GO Mode:
  - GO NEXT – GO button will trigger next cue,
  - TIME – cues will be triggered automatically based on time (if cue time is not set, cue will be ignored and not triggered – only in TIME mode of course).
- Playback Mode:
  - DEFAULT – when next cue is started all other cues will continue to play or stop based on current cue channels settings (see channel playback mode option),
  - SINGLE – when next cue is started all other cues will be stopped regardless of current cue channels settings.

Cue functions:
- Add Cue – add new cue to the playlist.
- Edit Cue – edit selected cue in the playlist.
- Delete Cue – delete selected cue from the playlist.
- Move Up Cue – move selected cue in the playlist up (cue no. 5 -> cue no. 4).
- Move Down Cue – move selected cue in the playlist down (cue no. 4 -> cue no. 5).
- Delete All – delete all cues from the playlist.

Playback functions:
- Set GO/TIME to Selected Cue:
  - GO NEXT Mode – GO button will be set to trigger selected cue in the playlist,
  - TIME Mode - current time will be set to selected cue time.
- Stop All – stop all cues.
- GO button:
  - GO NEXT Mode – GO button will trigger next cue in the playlist,
  - TIME mode – GO button will start/stop time, cues will be triggered automatically based on time.

Note that you can use Return key or assign MIDI message to trigger GO button.

Playlist item – Cue

Playlist item – cue contains play/stop button with cue number, audio, video and image channel number, name, time, play mode, loop, fade in/out status, cue time, name, note and edit functions (move up/down, edit and delete).

Play/Stop with Cue Number

Audio, video and image channel number and name

Audio, video and image channel time, play mode, loop and fade in/out status

Cue time, name and note

Cue edit functions
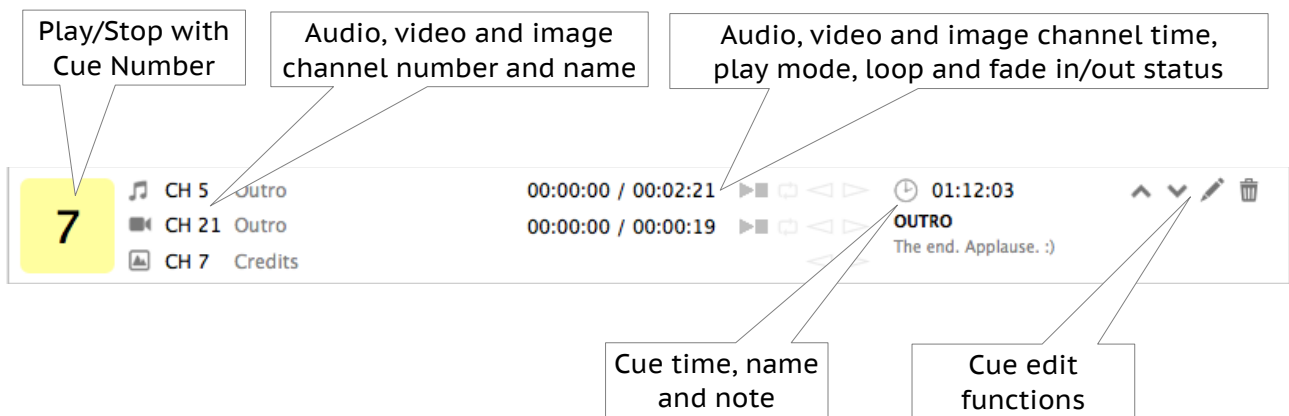
Cue Play/Stop button status:
- yellow – cue never played,
- red – cue stopped, played at least once,
- green – cue playing.

Cue channels:
you can assign one audio, video and image channel per cue. Of course you don't have to assign all three types of channels, but you can assign only one or all possible combinations like audio and video or video and image etc.
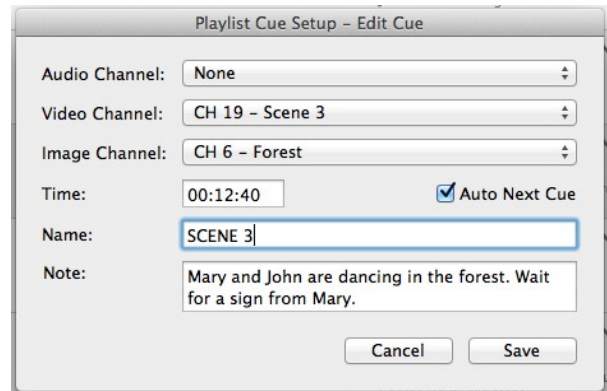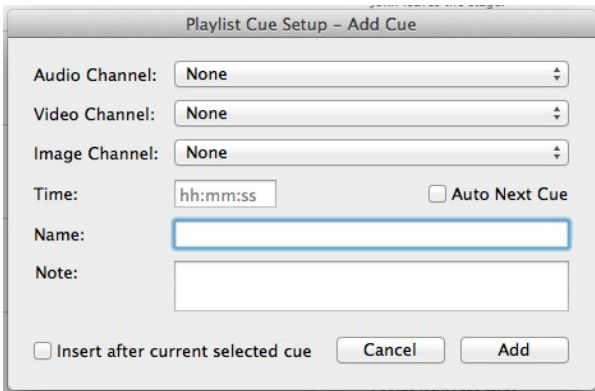
Note that you can edit audio, video and image channels settings by clicking on the channels icons next to cue Play/Stop button.

Cue playback logic:
- if both audio and video channels are assigned cue will stop playing when media with the longest time will stop playing,
- if only image channel is assigned cue will stop playing only when other cue is triggered and playlist or channel SINGLE Playback Mode option is set or manually,
- when both video and image channels are assigned, image will always be on the top of the video (tip: to create video overlays, use PNG images with transparent parts where needed),
- if you play cue and manually stop all channels assigned to cue, cue will stop playing,
- you can not change cue and channels options when cue is playing,
- TIME mode playback: cues without time will be ignored and not triggered.

Add/Edit Cue Window

Add/Edit cue window contains audio, video and image channel selection, time, name and note fields and Add/Save and Cancel buttons. Add cue window also contains Auto Next Cue and Insert after current selected cue options.

To assign audio, video or image channel simply select desired channel from the list. Loaded channels will contain channel name next to channel number, empty channels „Not loaded." text. To remove assigned channel select „None" from the list.

Note that at least one channel must be assigned to cue. It can be audio, video or image or combination of all three types of channels.

Enter time in hh:mm:ss format (hours, minutes, seconds). If time will be entered in wrong format, don't worry, app will warn you.

Turn on Auto Next Cue option if you want next cue to start automatically when current cue has finished playing. Auto Next Cue option works only when GO NEXT mode is selected and of course for audio and video channels (if cue has image channel only Auto Next Cue will do nothing because image does not have a playable duration).

Note that time, name and note are optional, but:
- *when using TIME Mode you will need to set time if you want cue to be triggered,*
- *when using NAME Display Mode you will want to set name or note (or both), otherwise playlist will contain cue numbers only.*

Main Menu

Main menu contains items: New, Open, Save, Import and Export Setup, Load Multiple Audio, Video and Image files and Alphabetically option (File menu), Channel Numbers and Keyboard Mapping (View menu), MIDI Setup (Tools menu) and Disable Keyboard Actions, Disable External Display and Disable Preview Window (Options menu).
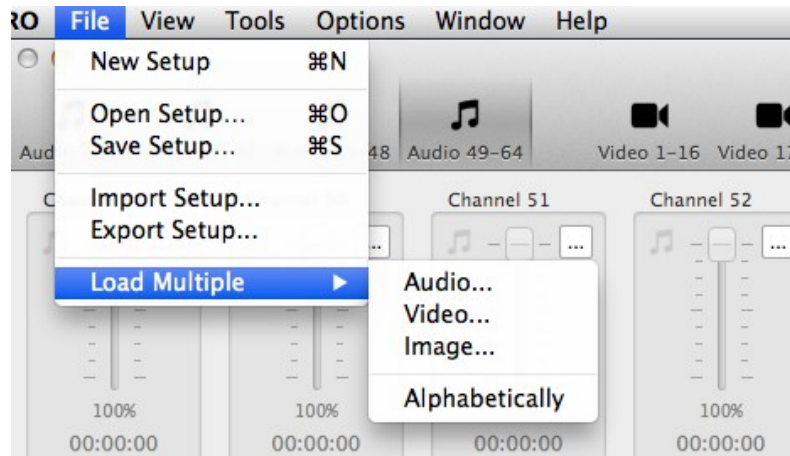
File menu:
- New Setup – create new channels setup. Current channels setup will be cleared. No undo!
- Open Setup – browse and open channels setup file. Current channels setup will be overwritten. No undo!
- Save Setup – save current channels setup to a file. You can choose new file or overwrite existing file. In this case no undo!
- Import Setup – import setup from exported setup folder (using MiX16 PRO on another computer).
- Export Setup – export current channels setup to a custom folder (to use it on another computer or on iPad – iMiX16 PRO64 app).
  Important! Audio, video and image files are exported as well, so make sure you have enough disk space.
- Load Multiple – load multiple audio, video or image files into empty channels.
- Alphabetically – when ticked, selected multiple files will be loaded into channels alphabetically, regardless of the sort order in Finder.

Note that audio, video and image files are not saved into the setup file! So if you delete files from your computer and then open channels setup which contains links to deleted files, channels will not be loaded.

View menu:
- Channel Numbers – set channels titles to show channel numbers.
- Keyboard Mapping – set channels titles to show keyboard mapping.

Tools menu:
- MIDI Setup – open MIDI Setup window.

Options menu:
- Disable Keyboard Actions – turn on to disable app keyboard actions.
- Disable External Display – turn on to disable app to take over external display when connected *(useful when using audio channels only and you need external display for other purposes).*
- Disable Preview Window – turn on to disable app preview window *(useful when using audio channels only and you don't want extra window to be displayed on the desktop).*

Supported file formats and extensions:
- audio: AIF, AIFF, M4A, MP3 and WAV.
- video : MOV, MP4 and MP4V.
- image: JPG, JPEG and PNG.

Main Status Bar

Status bar is located at the bottom of the main window and contains items: loaded setup file path, progress indicator (hidden, visible only when loading, saving, importing or exporting data), information about connected MIDI controllers and information about connected external display („No ext. display." text when not connected, external display size W x H in pixels when connected).

Loaded Setup File Path

Connected MIDI Controllers

External Display Info
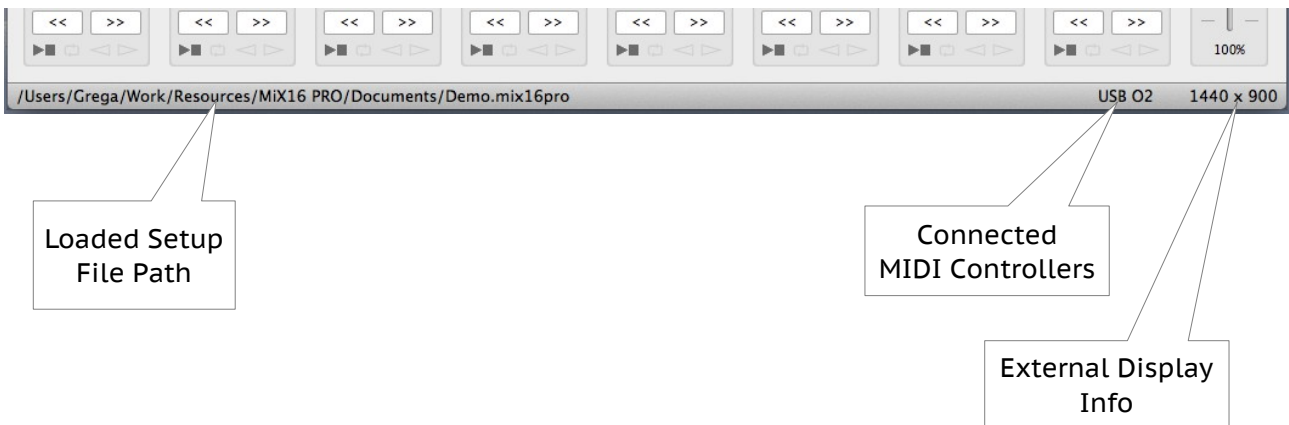
Keyboard Mapping

IMPORTANT! Keyboard controls selected audio, video or image section only.

Audio and Video Channels

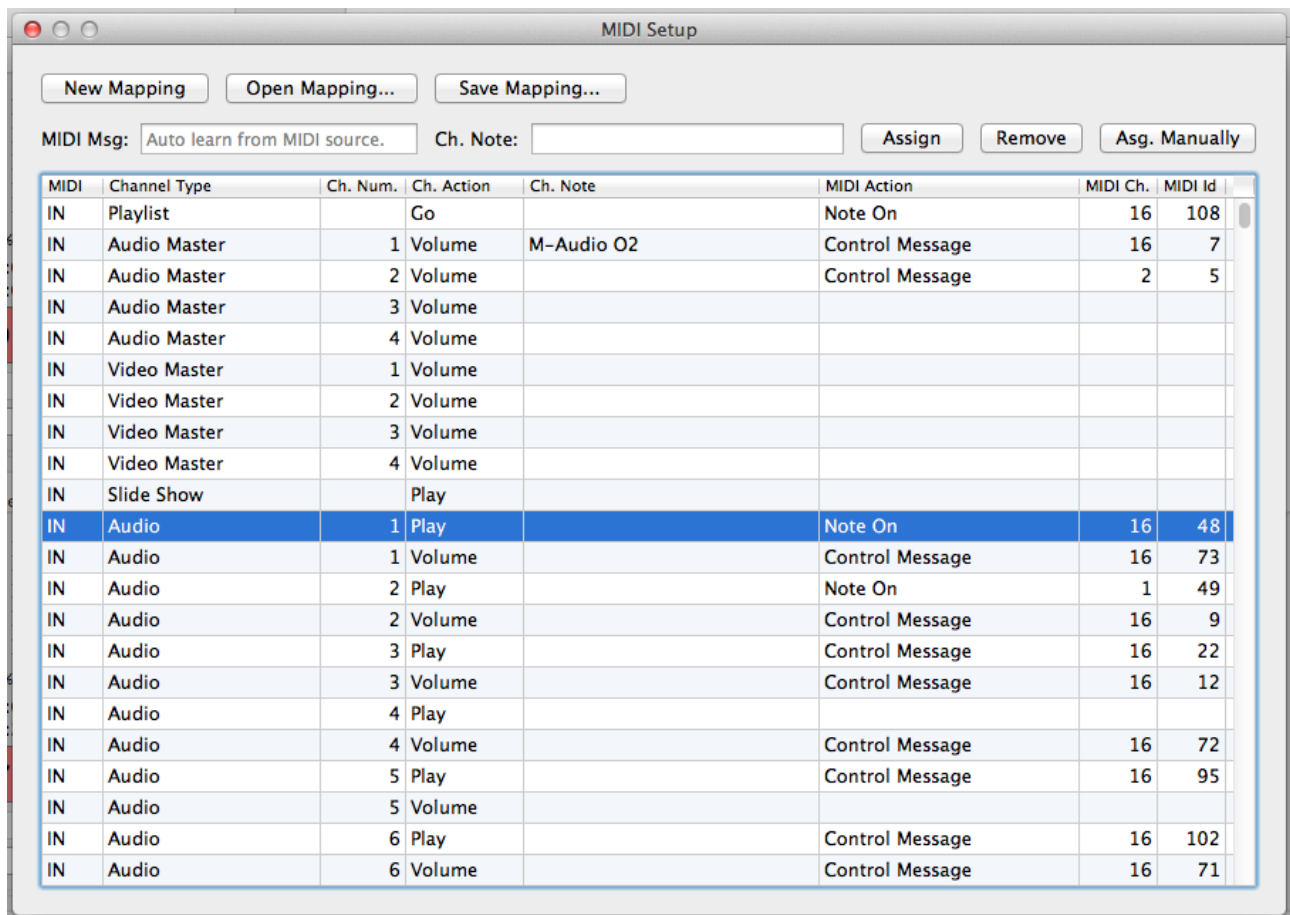| KEY	ACTION	KEY	ACTION
1	Play/Stop channel 1, 17, 33, 49	A	Volume up for 5% channel 1, 17, 33, 49
2	Play/Stop channel 2, 18, 34, 50	S	Volume up for 5% channel 2, 18, 34, 50
3	Play/Stop channel 3, 19, 35, 51	D	Volume up for 5% channel 3, 19, 35, 51
4	Play/Stop channel 4, 20, 36, 52	F	Volume up for 5% channel 4, 20, 36, 52
5	Play/Stop channel 5, 21, 37, 53	G	Volume up for 5% channel 5, 21, 37, 53
6	Play/Stop channel 6, 22, 38, 54	H	Volume up for 5% channel 6, 22, 38, 54
7	Play/Stop channel 7, 23, 39, 55	J	Volume up for 5% channel 7, 23, 39, 55
8	Play/Stop channel 8, 24, 40, 56	K	Volume up for 5% channel 8, 24, 40, 56
Q	Play/Stop channel 9, 25, 41, 57	Z	Volume down for 5% channel 1, 17, 33, 49
W	Play/Stop channel 10, 26, 42, 58	X	Volume down for 5% channel 2, 18, 34, 50
E	Play/Stop channel 11, 27, 43, 59	C	Volume down for 5% channel 3, 19, 35, 51
R	Play/Stop channel 12, 28, 44, 60	V	Volume down for 5% channel 4, 20, 36, 52
T	Play/Stop channel 13, 29, 45, 61	B	Volume down for 5% channel 5, 21, 37, 53
Y	Play/Stop channel 14, 30, 46, 62	N	Volume down for 5% channel 6, 22, 38, 54
U	Play/Stop channel 15, 31, 47, 63	M	Volume down for 5% channel 7, 23, 39, 55
I	Play/Stop channel 16, 32, 48, 64	,	Volume down for 5% channel 8, 24, 40, 56
Arrow Up	Master volume up for 5%.	When CAPS LOCK is ON, volume up/down for 5% bottom channels 9, 10, 11, 12, 13, 14, 15, 16, etc.	
Arrow Down	Master volume down for 5%.		
Shift, Function	Audio and Video channels: Rewind and Fast Forward speed (Shift key - 5 sec, Function key - 10 sec).		

Image Channels

KEY	ACTION	KEY	ACTION
1	Play/Stop channel 1, 33	A	Play/Stop channel 17, 49
2	Play/Stop channel 2, 34	S	Play/Stop channel 18, 50
3	Play/Stop channel 3, 35	D	Play/Stop channel 19, 51
4	Play/Stop channel 4, 36	F	Play/Stop channel 20, 52
5	Play/Stop channel 5, 37	G	Play/Stop channel 21, 53
6	Play/Stop channel 6, 38	H	Play/Stop channel 22, 54
7	Play/Stop channel 7, 39	J	Play/Stop channel 23, 55
8	Play/Stop channel 8, 40	K	Play/Stop channel 24, 56
Q	Play/Stop channel 9, 41	Z	Play/Stop channel 25, 57
W	Play/Stop channel 10, 42	X	Play/Stop channel 26, 58
E	Play/Stop channel 11, 43	C	Play/Stop channel 27, 59
R	Play/Stop channel 12, 44	V	Play/Stop channel 28, 60
T	Play/Stop channel 13, 45	B	Play/Stop channel 29, 61
Y	Play/Stop channel 14, 46	N	Play/Stop channel 30, 62
U	Play/Stop channel 15, 47	M	Play/Stop channel 31, 63
I	Play/Stop channel 16, 48	,	Play/Stop channel 32, 64
SPACE	Play/Stop slide show.		

MIDI Setup

MIDI Setup window contains: New Mapping, Open Mapping and Save Mapping buttons, MIDI Message textbox, Channel Note textbox, Assign, Remove and Assign Manually buttons and MIDI mapping table.

MIDI	Channel Type	Ch. Num.	Ch. Action	Ch. Note	MIDI Action	MIDI Ch.	MIDI Id
IN	Playlist		Go		Note On	16	108
IN	Audio Master	1	Volume	M-Audio O2	Control Message	16	7
IN	Audio Master	2	Volume		Control Message	2	5
IN	Audio Master	3	Volume				
IN	Audio Master	4	Volume				
IN	Video Master	1	Volume				
IN	Video Master	2	Volume				
IN	Video Master	3	Volume				
IN	Video Master	4	Volume				
IN	Slide Show		Play				
IN	Audio	1	Play		Note On	16	48
IN	Audio	1	Volume		Control Message	16	73
IN	Audio	2	Play		Note On	1	49
IN	Audio	2	Volume		Control Message	16	9
IN	Audio	3	Play		Control Message	16	22
IN	Audio	3	Volume		Control Message	16	12
IN	Audio	4	Play				
IN	Audio	4	Volume		Control Message	16	72
IN	Audio	5	Play		Control Message	16	95
IN	Audio	5	Volume				
IN	Audio	6	Play		Control Message	16	102
IN	Audio	6	Volume		Control Message	16	71

- New Mapping – create new MIDI mapping. Current MIDI mapping will be cleared. No undo!
- Open Mapping – browse and open MIDI mapping file. Current MIDI mapping will be overwritten. No undo!
- Save Mapping – save current MIDI mapping to a file. You can choose new file or overwrite existing file. In this case no undo!
- MIDI Message – MIDI message received from a MIDI source.
- Channel Note – set note for selected channel (optional).
- Assign – assign current MIDI message (auto learn from MIDI source) and channel note to selected channel.
- Remove – remove MIDI message from selected channel.
- Assign Manually – manually assign MIDI message and channel note to selected channel.

IMPORTANT!
MIDI mapping is automatically saved to an internal file whenever you make changes or close MIDI Setup window and it is automatically loaded when app starts. Which means you don't have to use Open/Save Mapping functionality every time you wish to load or save default MIDI mapping. Open/Save Mapping functionality is useful when you have multiple MIDI controllers and you want to keep MIDI mapping files for all of them.

MIDI Mapping Table

MIDI mapping table contains a list of channels which are able to receive and send MIDI messages. Each MIDI map (channel + MIDI) in the table tells the app which MIDI message from MIDI source will trigger channel action (MIDI IN) and also which MIDI message will be sent to other apps and MIDI devices (MIDI OUT) when channel action is performed for example Play button pressed, Volume slider changed, etc.

- MIDI Type – receive / sent MIDI message (IN – receive, OUT – send).
- Channel Type – Audio, Video, Image, Master Volume, etc.
- Channel Number – from 1 to 64 (0 if channel type is „special" channel like Master Volume, Slide Show, etc.).
- Channel Action – Play, Volume (channels and master volume) and Go (Playlist).
- Channel Note – a short text for your own purposes (optional).
- MIDI Action – first part of MIDI message (Note On, Control Message, etc.).
- MIDI Channel – second part of MIDI message (from 1 to 16).
- MIDI Id – third part of MIDI message (from 0 to 127).

Note that fourth part of MIDI message (MIDI Value) is not assignable, but it is automatically used when controlling master or channels volume (applies for both MIDI IN and MIDI OUT).

MIDI OUT

MIDI messages will be sent manually only. Which means that MIDI messages will be sent when you manually press Play button or change Volume slider. MIDI messages will NOT be sent when volume slider is changed automatically (during fade in/out) or when channel is stopped because of media reached the end, etc.

How to use

Connect MIDI controller to a computer. Open MIDI Setup window. Press note key or control button/slider on a MIDI controller. MIDI message will be displayed in the MIDI message textbox. Set channel note (optional), select desired channel from the mapping table and press Assign button. MIDI message and channel note will be assigned to a selected channel and default MIDI mapping will be automatically saved. Close MIDI Setup window to test and use assigned note keys and control buttons/sliders.

Note that you can assign the same MIDI message to a multiple channels, for example: assign MIDI controller slider to all Audio Master Volume channels to control audio master volume for all audio sections at the same time. Or assign MIDI controller note key to Audio Channel 1 Play and Video Channel 17 Play to control Play/Stop for audio and video channel at the same time. And so on.